



Texas Buffers for Wildlife

United States
Department of
Agriculture

Natural Resources
Conservation Service

Temple, Texas

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Windbreak/Shelterbelt

Conservation Buffer Job Sheet 380

DEFINITION

A belt of trees or shrubs established to provide protection from wind.

PURPOSE

This supplement to the national job sheet is designed to assist with integrating wildlife habitat prescriptions into planning windbreaks/shelterbelts that protect soil, crops, livestock, roads, home, or other farmstead areas. The wildlife habitat components that can be provided by a windbreak/shelterbelt include nesting cover, roosting areas, fawning areas, feeding cover, escape cover, travel corridors between habitats, and critical resting stops for migratory songbirds during spring and fall migration. Many species of wildlife native to Texas, such as white-tailed deer, wild turkeys, bobwhite quail, ring-necked pheasants, cardinals, woodpeckers, owls, and small mammals will use the woody habitat provided by this common agricultural conservation practice.

SITE CONSIDERATIONS

- Landowner objectives (specific types of wildlife or wildlife habitat desired, agricultural use, etc.)
- Cultural methods and type of farming equipment
- Proximity to available water
- Adjacent cropland (irrigated, non-irrigated, type of crop)
- Soil characteristics (texture, depth, moisture, etc)
- Annual rainfall and snowfall
- Plant hardiness zones
- Connection to other wildlife habitats



DESIGN CONSIDERATIONS

Alternatives can vary from simple, when creating habitat where wildlife is not the landowner's primary objective, to complex when designing and managing shelterbelts for specific wildlife such as songbirds, pheasants, quail, or white-tailed deer. The habitat contribution of a windbreak/shelterbelt is determined by the vegetation selected, the width, and its connection to other wildlife habitat in the surrounding landscape. It is also important to consider the role of additional raptor perches, created by shelterbelts, on a landowner's wildlife objectives. The trees and shrubs selected should be adapted to the site and have wildlife benefits, in addition to addressing the landowner's other objectives and economic concerns. Native species are a good choice, as they are adapted to the area and wildlife are familiar with them.

Recommended Width

The width of a woody planting within a cropland area is always an important wildlife habitat consideration. For upland game species, field windbreaks should consist of at least 2 rows. One row should be a fruit bearing species and one an evergreen species. A minimum of seven rows should be used for livestock or farmstead shelterbelts.

Vegetation

See conservation practice standard 380, Windbreak/Shelterbelt Establishment, 650, Windbreak/Shelterbelt Renovation, and the Texas supplement to conservation practice standard 645, Upland Wildlife Management for plant species that are beneficial to wildlife.

Farmstead and feedlot windbreaks

Use two rows of conifers on the windward side and stagger the rows to insure that the spaces are filled. The middle rows should consist of tall deciduous trees that provide both food and cover for nesting, loafing or feeding. Using several different species in the mixture will provide benefits for more wildlife species. On the leeward side utilize a row of tall and short shrubs. Choose a mixture of as many species as practical to maximize wildlife utilization.

Some grassland birds need large unbroken areas of grass habitat with few trees and shrubs. Birds such as western meadowlarks, bobolinks and grasshopper sparrows have shown recent population declines. Some studies indicate that near woody cover, these species are exposed to brood parasitism from cowbirds and increased nest predation by other birds and mammals. Other plains' species such as the pronghorn may also be adversely affected by adding windbreaks/shelterbelts to large areas of grassland. Consider wildlife tradeoffs when planting windbreaks in large areas of grasslands.

Standard row designs will provide wildlife benefits, and are often necessary to provide irrigation and control competing vegetation during establishment, but a more naturalistic design that intermixes conifers, deciduous trees, and shrubs of varying heights will increase the aesthetic and habitat values without compromising the primary purpose. Wildlife values can also be enhanced by creating an area of native herbaceous cover and/or food plots on the leeward side of the shelterbelt. Herbaceous cover can also be used on the windward side to provide protection to the trees and shrubs during establishment as well as a transition zone between the shelterbelt and the adjoining crop field.

Field windbreaks

Three or four rows of trees and shrubs are preferred, using a combination of conifers, deciduous trees and/or shrubs that provide food, cover, and travel lanes. Stagger the rows to insure that the spaces are filled and utilize a row of shrubs on the leeward side of the shelterbelt. In areas with multiple shelterbelts within agricultural fields, utilize field borders to connect the components of the wind erosion system. If wildlife is a primary purpose, an area of herbaceous cover (grasses, forbs and legumes) at least 20 ft. wide should be established as a transition zone to the adjoining crop field. Choose a mixture of as many species as practical to maximize wildlife utilization.

Establishment specifications are as follows:

1. Trees and shrubs may be cuttings, bareroot or container grown stock. Order plants in spring or summer prior to planting season to insure availability.
2. Site preparation for trees and shrubs may be accomplished by disking or labeled herbicide treatment. Planting of trees and shrubs may be accomplished by machine or hand planting. Erosion control during the establishment period must be considered with any planting operation.
3. Fertilizer is not necessary for new plantings, as it may stimulate competition that can compete for light and moisture.
4. Planting stock must be protected from drying out and warm temperatures and planted between November 1 and March 15.
5. Certain (pesticides) herbicides and insecticides may be specified for application as needed to facilitate tree and shrub establishment. When these pesticides are applied, the participant is responsible for assuring that all application rates and methods are consistent with label directions and that all required record keeping is maintained.
6. Temporary exclusion of recreation, livestock, and some wildlife may be required until the desired vegetation is established.

Maintenance/Management

In order to maximize wildlife benefits over the life of the practice, periodic management practices need to be implemented. All competing vegetation within 3 ft. of newly established trees and shrubs must be controlled until they develop a 6 ft. dripline. After the trees and shrubs are established, a herbaceous understory can develop in order to add to the vertical complexity of the practice. Management practices and implementation timing are generally dictated by local conditions, vegetation structure, and habitat conditions desired.

Maintenance/Management specifications are as follows:

1. Use plastic mulch to control weeds, retain soil moisture, and increase the growing season by increasing soil warming.
2. After establishment, dead trees should be left to provide food and shelter for birds and mammals and plant replacement tree at the base.
3. When wildlife is an objective, pruning is discouraged except to repair damage affecting the health and vigor of the plant.

4. Management of herbaceous vegetation adjoining the windbreak/shelterbelt to enhance wildlife habitat should follow the guidelines in the Field Borders Jobsheet.

SPECIFICATIONS

Windbreak/Shelterbelt- Specification Sheet

Landowner _____ Field Number _____

Purpose (check all that apply)	
<input type="checkbox"/> Provide wildlife habitat	<input type="checkbox"/> Reduce wind erosion
<input type="checkbox"/> Protect growing plants (crops, forage, other)	<input type="checkbox"/> Provide a living screen (view and noise control, other)
<input type="checkbox"/> Manage snow	<input type="checkbox"/> Improve aesthetics
<input type="checkbox"/> Provide shelter for structures (farmstead, house, other)	<input type="checkbox"/> Improve irrigation efficiency
<input type="checkbox"/> Provide shelter for livestock	<input type="checkbox"/> Other (specify)

Location and Layout	
Width (ft.):	
Length (ft.):	Area (ac.):
Total area of zone protected (ac.; based on the expected height and density of the windbreak/shelterbelt):	
Additional elements (food plots, herbaceous vegetation, crop residue):	

Woody Plant Materials Information					
Species/cultivars by row number:	Kind of stock:	Planting dates:	Plant-to-plant Distance(ft.) Within row	Number of plants/row	Distance(ft.) to the next row
1					
2					
3					
4					
5					
6					
7					
8					

Temporary Storage Instructions
Planting stock that is dormant may be stored temporarily in a cooler or protected area. For stock that is expected to begin growth before planting, dig a V-shaped trench (heeling-in bed) sufficiently deep and bury seedlings so that all roots are covered by soil. Pack the soil firmly and water thoroughly.
Site Preparation
Remove debris and control competing vegetation to allow enough spots or sites for planting and planting equipment. For

plantings requiring supplemental moisture, prepare and ready applicable materials for installation. Additional requirements:

Planting Methods

For container and bareroot stock, plant stock to a depth even with the root collar in holes deep and wide enough to fully extend the roots. Pack the soil firmly around each plant, Cuttings are inserted in moist soil with at least 2 to 3 buds showing above ground. Additional requirements:

Windbreak/Shelterbelt Maintenance

The planting must be inspected periodically and protected from damage so proper functions are maintained. Replace dead or dying tree and shrub stock and control competing vegetation to allow proper establishment. For plantings requiring supplemental moisture, install and begin operation of the irrigation system. After trees are established leave dead trees for wildlife feeding and shelter and replant replacement tree at the base. Pruning is discouraged except to repair damage affecting health and vigor. Additional requirements:

WINDBREAK/SHELTERBELT - JOB SKETCH

If needed, an aerial view and/or side view of the windbreak/shelterbelt shown below. Other relevant information, such as complementary practices, adjacent field conditions (including crop type), and additional specifications may also be included.

Scale 1"= _____ ft. (NA indicates sketch not to scale: grid size= 1/2" by 1/2")

Additional Specifications and Notes:

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